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COST-COMPARISON OF INTRACARDIAC AND TRANSESOPHAGEAL ECHOCARDIOGRAPHY TO GUIDE LEFT ATRIAL APPENDAGE OCCLUSION



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BACKGROUND

Echocardiographic imaging is paramount during left atrial appendage occlusion (LAAO).

Observational studies have demonstrated similar efficacy and safety of intracardiac echocardiography (ICE) from the left atrium and transesophageal echocardiography (TEE)^{1,2}.

However, **the high cost of ICE catheters may be a concern.**

PURPOSE

To perform a cost-comparison of TEE and ICE guided LAAO by estimating the mean cost per patient.

METHODS

Study design

- A retrospective cost-analysis based on a single-center cohort of patients undergoing LAAO at Aarhus University Hospital, Denmark.
- Procedural data, efficacy and safety has been published previously¹

The Danish Healthcare system

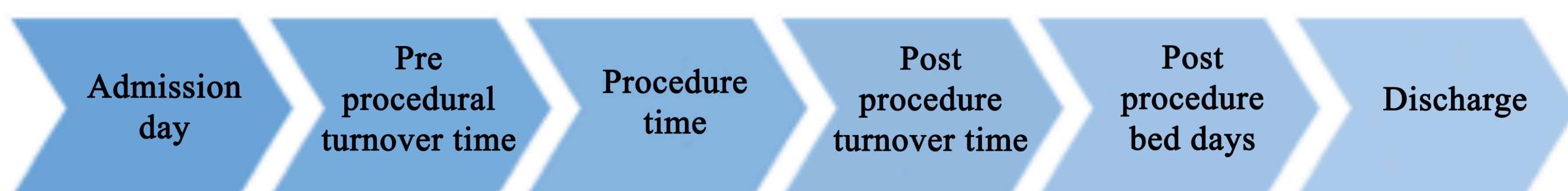
- Publicly financed through general taxes, with equal availability of healthcare to all residents regardless of financial status.
- Individual hospital costs are supported by a system of central government block grants and reimbursement.

Cost-identification

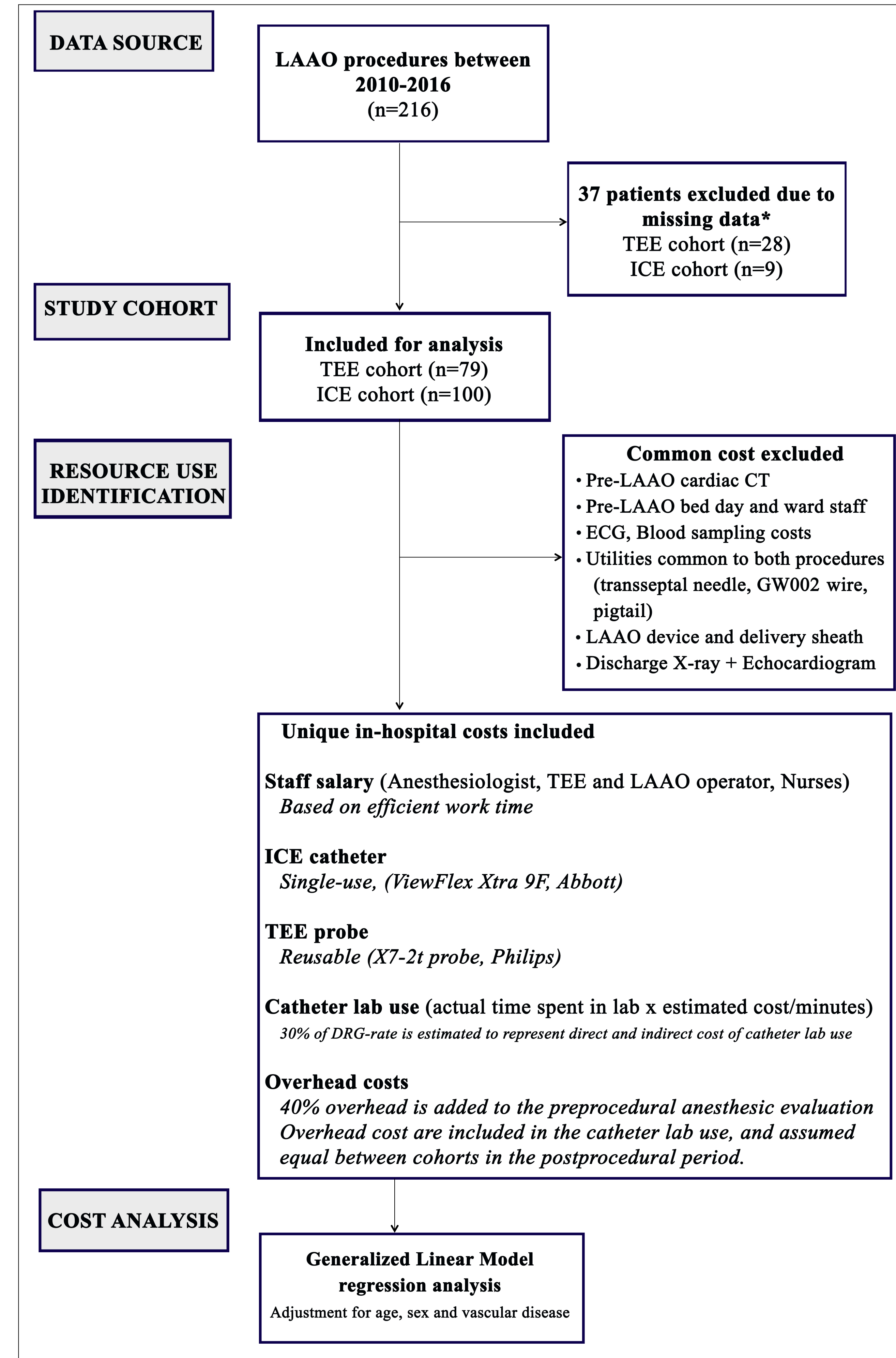
- A public hospital perspective with a micro-costing approach was applied to estimate patient-specific in-hospital costs between TEE and ICE guided procedures.
- Costs common to both procedures were excluded from analysis

LAAO setup

All patients were admitted the day before the intervention, and had pre-procedural cardiac CT for exclusion of LAA thrombus and device sizing. The LAAO was performed using the Amplatzer Cardiac Plug or Amulet. Patients were admitted overnight for observation and a transthoracic echocardiogram was performed before discharge.



The in-hospital period was subdivided into 5 time periods, the unique resource use and costs were identified for each period.



* Missing by random

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RESULTS

The results are presented below as mean cost per patient in US Dollars.

	TEE cohort	ICE cohort
Mean cost pr. patient	4921 (CI: 4350-5697)	5220 (CI: 4951-5610)
Admission day cost	17 ± 0	-
Pre-procedural turnover cost	1566 ± 568	939 ± 435
Procedural cost	2341 ± 1300	4146 ± 432
Post-procedural turnover cost	938 ± 470	536 ± 218
Post-procedure cost	26 ± 3	-

Mean cost per patient in US dollars. Results are reported with bias-corrected and accelerated 95% confidence intervals or ± standard deviation.

Pre-procedural turnover = Time from arrival at the catheter lab to venous puncture.

Procedure time = Time from venous puncture till vascular closure.

Post-procedural turnover = Time from vascular closure till exit of catheter lab.

LIMITATIONS

- This is a single-center study based on a public healthcare system. Its generalizability may depend on the reimbursement system and healthcare structure.
- The results are estimates with uncertainty. They reflect only the cost variables included in the analysis.

CONCLUSION

The cost of ICE catheters appears to be balanced out by

- No need for general anesthesia,
- Less personnel required per procedure,
- Reduced overall time used in the catheter lab.

Thus, **ICE from the left atrium appears to be cost-neutral.**

This may aid decision-making between TEE and ICE from the left atrium, from a health-economic perspective.